

Response to Office Action
U.S. Patent Appln. No. 09/749,480

Docket No. 6169-141
IBM Docket No. BOC9-1999-0084

REMARKS

These remarks are made in response to the Office Action of March 7, 2003 (Office Action). As this response is timely filed within the 3-month shortened statutory period, no fee is believed due.

In paragraphs 2 and 3 of the Office Action, claims 1-4, 10-15, and 21 were rejected under 35 U.S.C. § 102(b) as being anticipated by U.S. Patent No. 5,956,020 to D'Amico *et al.* (D'Amico). In paragraphs 4 and 5, claims 5-9 and 16-20 were rejected under 35 U.S.C. § 103(a) as being unpatentable over D'Amico.

In response, the Applicants have amended claims 1 and 12 to clarify the manner in which the present invention distinguishes between finger and stylus contact with a touchscreen. In particular, the Applicants have amended these claims to recite that, contrary to the teachings of D'Amico, size information corresponding to a detected contact with the touchscreen can be compared with a threshold contact size.

The Applicants also have amended claims 10 and 21 to clarify that one of two different visual interfaces can be presented based upon the type of contact that is detected, i.e. a visual interface corresponding to a finger contact or a visual interface corresponding to a stylus contact.

Claims 22 and 23 have been added and are directed to performing a programmatic action based upon the determination of whether a detected contact with the touchscreen was initiated by a finger or a stylus. Support for these claims can be found at page 17, lines 1-12. Claims 2 and 13 have been cancelled. No new matter has been added in consequence of these amendments.

Prior to addressing the rejections on the art, a brief review of the Applicants' invention is appropriate. The Applicants have invented a method and apparatus for distinguishing between a finger and a stylus using a touchscreen. In particular, the present invention can detect a contact with a touchscreen and generate contact information that specifies size information for the detected contact. The contact information can be compared with contact criteria. The contact criteria can specify a contact size threshold for classifying detected contacts as being initiated by a finger or a

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stylus. Based upon the comparison, the present invention can determine whether the detected contact was initiated by a finger or a stylus.

Using the stylus/finger determination, one or more strategies for operation of a pointer and/or for presentation of a graphical user interface suited for control by a finger or a stylus can be implemented. For example, if a determination is made that a finger initiated contact with the touchscreen, the on-screen pointer can be offset from the location of the detected contact so as not be obscured by the finger itself, the duration of contact can be detected to prevent against inadvertent finger contacts with the touchscreen, and/or a specialized visual interface can be presented which is suited for manipulation by a finger rather than a stylus. Thus, the present invention can automatically determine whether contact is from a finger or a stylus and then implement a suitable strategy to facilitate interaction with a user despite the type of instrument used to contact the touchscreen.

Turning to the rejections on the art, claims 1-4, 10-15, and 21 were rejected under 35 U.S.C. § 102(b) as being anticipated by D'Amico. D'Amico discloses a touchscreen system that can be operated with a touchpen and/or a user's finger. Unlike the Applicants' invention, D'Amico utilizes a touchpen that is electrically coupled to a controller. As noted in column 3, lines 47-60, the touchpen generates a sinusoidal signal at its tip. When the touchpen makes contact with the touchscreen, the sinusoidal signal can be detected by the touchscreen. Importantly, the sinusoidal signal generated by the touchpen is 180 degrees out of phase by comparison to the sinusoidal signal generated when a finger makes contact with the touchscreen. D'Amico uses this phase difference to distinguish between a finger and touchpen. In fact, at column 3, lines 59-60, D'Amico states that "[t]he phase change is detected by the controller to discriminate between touchpen and finger inputs."

In contrast to the teachings of D'Amico, the Applicants' invention, as presently claimed, detects the size of a contact upon the touchscreen. The size of the contact is compared with a threshold contact size to determine whether the contact was a stylus contact or a finger contact. Notably, the present invention does not require that the stylus be electrically coupled to the touchscreen or controller as is required by the

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D'Amico device. Further, D'Amico makes no mention of detecting or comparing size information of a contact with a threshold size to distinguish between a finger contact and a stylus contact. As noted, D'Amico teaches only that the phase difference between the two different types of contact can be detected and used as a means for distinguishing between finger and stylus contact.

Regarding claims 10 and 21, it has been asserted that D'Amico teaches a visual interface in the touchscreen which corresponds to the finger contact or the stylus contact. No citation, however, was provided in the Office Action indicating where in the D'Amico reference such a feature is taught. The Applicants' invention can present a visual interface which corresponds to a detected finger contact or a visual interface which corresponds to a detected stylus contact. That is, the present invention can present a different visual interface based upon the type of contact detected upon the touchscreen. For example, as taught in the Applicants' specification, a visual interface for a detected finger contact can include larger controls that facilitate user interaction as compared to a stylus user interface having smaller controls. The Applicants found no such teaching within D'Amico.

Although claim 11 has been rejected under 35 U.S.C. § 102(b), claim 11 includes features that are common to several dependent claims which were rejected under 35 U.S.C. § 103(a). Accordingly, the discussion with respect to claims 1 and 12, as well as the following discussion regarding claims 5-9 and 16-20 is applicable to claim 11.

In light of the foregoing, withdrawal of the 35 U.S.C. § 102(b) rejection with respect to claims 1-4, 10-15, and 21 is respectfully requested.

Claims 5-9 and 16-20 were rejected under 35 U.S.C. § 103(a) as being unpatentable over D'Amico. The Examiner concedes that D'Amico does not explicitly teach detecting the duration of contacts or the distance from the detected contact. The Examiner contends, however, that it would have been obvious to one of ordinary skill in the art to utilize a detection as claimed because it would give a better reading of the exact point of contact by a user whether the user uses a finger or a pen.

Claims 5 and 16 state, in relevant part, that an on-screen pointer can be relocated or offset a predetermined distance from a detected contact. Notably, claim 11

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includes this feature as well. The on-screen pointer can be relocated so as not to be obscured by a user's finger. In other words, the cursor or pointer in a visual interface that indicates the point of contact of a finger upon a touchscreen can be relocated a small distance so that the spreading surface area of the finger as it is pressed against the touchscreen does not obscure the cursor or pointer.

D'Amico includes no teaching or suggestion that such an operation can be performed. That is, D'Amico includes no teaching or suggestion that a programmatic action can be taken based upon the determination of whether a finger or stylus contact with a touchscreen is detected. Further, relocating the on-screen pointer a predetermined distance from the detected contact provides no added benefit in terms of attaining a better reading of the point of contact as suggested by the Examiner.

Regarding claims 6, 7, 17, and 18, the Examiner asserts that detecting a duration of a contact provides a better reading of the exact point of contact by a user whether the user is using a finger or a touchpen. The duration of a contact can be detected so that inadvertent contact with the touchscreen is not interpreted as an intended contact or an input to a computer system or to allow sufficient time to attain a contact size measurement for a finger contact. The duration between successive contacts can be detected to, for example, detect a double-click finger action. These features also are included in claim 11.

Contrary to the Examiner's assertion, a longer duration of contact, particularly by a finger, typically does not provide a more exact reading of the position of the finger upon the touchscreen. Prolonged finger contact with the touchscreen is subject to hand tremors and the effects of gravity. As such, in many cases, prolonged finger contact detracts from a system's ability to attain a more exact reading of location.

In light of the above discussion, the features recited in claims 5-9 and 16-20 would not have been obvious to one of ordinary skill in the art as suggested by the Examiner. As such, withdrawal of the 35 U.S.C. § 103(a) rejection with respect to claims 5-9 and 16-20 is respectfully requested.

The Applicants believe that this application is now in full condition for allowance, which action is respectfully requested. The Applicants request that the Examiner call

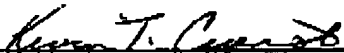
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the undersigned if clarification is needed on any matter within this Amendment, or if the Examiner believes a telephone interview would expedite the prosecution of the subject application to completion.

Respectfully submitted,

Date: 6/9/03


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